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ABSTRACT

For several reasons, a growing number of intelligent adults are questioning the use of computers to instruct young children. First, the ability of computers to respond to the expressions (boredom, fatigue, the need for encouragement, etc.) of young children is limited. Second, while computers may train functional, operational, and instrumental thinking, intuition may be neglected. Third, young children exposed to computers may become oblivious to the natural world as they program an imitation world. In addition, computers cannot provide the rich sensory experiences young children need for healthy development. The imagery of computers (flat, two-dimensional, visual, and externally supplied) may negatively affect the young child's capacity to create images. Some behavioral optometrists are certain an epidemic of extreme nearsightedness will result among children who drive themselves to master computers. Compuer use involves only three of five senses by which children learn. In view of such limitations and likely consequences, money spent on computers by schools might better be spent on reducing class size and giving teachers inservice help. (RH)

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Using Computers With Little Children: A Discussion

Susan Partridge

The chorus of enthusiasm for the use of the computer in education is a most familiar tune; however, many highly intelligent people are now voicing words of caution. Many of these people seem to be more concerned with the welfare of the children using the computer than the hardware and the software produced by big business.

This paper addresses itself to the use of the computer in education as it affects the very young children, as decades of educational experience have been convincing in the fact that the importance of these early years cannot be over-estimated. When little children enter school for the first time, they must adjust to a new schedule, a new environment, new friends, and new learning experiences. If the uniqueness of each child is not respected, fatigue, frustration, and even fear can result. A few questions come to mind:

1. Can the computer hear a little child sigh or moan?
2. Can the computer see a frown or drooped eyelids?
3. Can the computer give an encouraging smile or the touch of a human hand on a sagging shoulder?
4. Can the computer provide for the uniqueness of each little child -- his/her learning style, needs, interests, values, general well-being, and so forth, as it lays the foundation for the development of higher-level thinking skills such as interpreting and evaluating. Interpreting and evaluating have been known to be based

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in part on a child's background and sense of values. Interestingly enough, little children can often defend their thoughts about a story logically.

Beverly McLeod reviews the thoughts of several scholars regarding computers. One of these scholars is John Davy of Emerson College in England who notes that "computers, by their very nature... are potent training grounds for thinking about thinking in purely functional, operational, and instrumental terms." This might well lead to the neglect of intuition, for example, and though there have been mistaken intuitive calculations, intuition is not to be passed over lightly. This last thought is by no means new as evidenced in the following quotations, the first by Thomas Carlyle and the second by Oliver W. Holmes:

1. The healthy understanding, we should say is not the logical argumentative, but the intuitive, for the end of understanding is not to prove and find reasons, but to know and believe.
2. A moment's insight is sometimes worth a life's experience.

An environment rich in sensory experiences has long been considered very important in the healthy development of young children. Some questions regarding this development are raised:

1. Can the computer give a little child the soft, sweet fragrance of a rose? The fragrance of wild grapes?
2. Can the computer give a child the rough feel of sandpaper, the smooth feel of glass, the pleasant feel of the soft, green grass on his/her bare feet or the

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soft, warm, gentle rain on his/her head?

3. Can the computer let the little children enjoy the songs of the robins as they hop across their lawns searching for food?
4. Can the computer let the children savor the sweetness of the peach and pucker their mouths as they sample a sour pickle?

Many of these sensory impressions have been experienced by famous authors who have written beautiful poems about them -- poems that many children can, and do, enjoy so much because they can relate to them.

McLeod cited a scene described by Robert Sardello of the Dallas Institute of Humanitities and Culture in which children on a lovely day were marking off the geometric shapes of the LOGO computer program and were oblivious to the sun, grass, sky, and clouds. Apparently, Sardello feels that this learning is an abstraction; it turns away from the real world in order to program an imitation world.

Douglas Sloan emphasizes the need, on the part of educators, for pursuing critical questions about the use of the computer in education -- the purposes, the levels, the appropriateness/inappropriateness, the benefits to whom and the harm to whom.

It is generally conceded that the emotions play a part in cognition. Sloan raises the question, "What does an education of emotional rationality demand?" He answers his question thus, "A first prerequisite is the development of a rich life of the senses." He adds, "For the healthy development of growing child-

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ren especially, the importance of an environment rich in sensory experience -- color, sound, smell, movement, texture, a direct acquaintance with nature, and so forth -- cannot be too strongly emphasized." He then raises the question, "What is the nature and quality of the sensory life encouraged by the computer?"

Imagery, related to emotions, also plays a part in thinking. In this regard, Sloan feels that serious thought must be given to the computer with its "powerful but highly specific, and exceedingly limited, form of imagery." He asks, "What is the effect of the flat, two-dimensional, visual, and externally supplied image, and of the lifeless though florid colors of the viewing screen, on the development of the young child's own inner capacity to bring to birth living, mobile, creative images of his own?"

Dr. G. N Getman, a distinguished pioneer in the field of developmental optometry, has made it clear that there are many developmental skills children must achieve before they are exposed to a microcomputer, and he says that many of these have not yet been achieved by millions of primary children. He is refering to such skills as eye - hand coordination, attention span, spatial orientation, figure/ground, and visual peripheral awareness.

Getman emphasizes, "There is no doubt among behavioral optometrists, who have spent many years attending children with visual difficulty, that the computer will be the newest and most potent contributor to early, extreme nearsightness in the children who drive themselves to mastery of it in spite of the

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stress."

In using the computer in education, Deborah McCabe is concerned with how children learn. It is accepted that individuals have five sensory modalities by which they learn -- auditory, visual, kinesthetic, gustatory and olfactory. McCabe says, "Obviously, for instructional purposes involving a computer, the essential senses are auditory, visual, and kinesthetic. The challenge to educators is to share their knowledge concerning how individuals learn with programmers."

McCabe tells of a discussion between an educator and a programmer. The educator offered several criticisms of programs, some of which follow:

Visually cluttered and confusing.

Neglect of the auditory learner.

Too much input.

In regard to the significance of the neglect of the auditory learner, he reminded the programmer that the auditory learner responds well to sounds and song patterns. In regard to too much input, he reminded him that programs must be designed to be adaptable as some learners are confused by too much input.

Regardless of how the critical questions raised by people whose concern is in the best interest of little children are answered, a suggestion by a number of teachers might well be in order, that is, to use some of the available money on reducing class size, reducing the amount of paper work required of teachers and giving teachers constructive in-service help.

On many occasions witness has been borne to a little

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child's rushing to his teacher with a leaf, a flower, a butterfly, a stone, a rock or some other treasure found on the way to school only to have his/her enthusiasm dimmed by "That's nice" or, sometimes, "How nice!"

One of the critical questions raised earlier in this report dealt with the importance of the development, in little children, of a rich life of the senses. The teachers' suggestion, given above, might enable teachers to know more about each individual child and thus serve him/her better.

Perhaps a number of parents will plead guilty to having brushed off a child with a remark which, though not negative, certainly wasn't educationally stimulating. Some of thes same parents have denied themselves to buy a computer for their children because they've been led to believe that their children will become dropouts if they don't.

The number of people questioning the use of the computer in educating the young children continues to grow, and, hopefully, the strength in numbers will hasten the solution of the serious problems. Meanwhile, it might be wise to let the little children "smell the roses", but to keep them from "eating the daisies".

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Conclusion

It is concluded that there are many critical questions to be answered regarding the use of the computer with the little children. It is further concluded that the intent of the people raising the questions is to ensure the well-being of the children and not to underestimate or deny the wonders of the computer. These people know that the computer might well be appropriate for an older student but not for a little child.

Implications

1. Many critical questions, raised by concerned people, about the use of the computer in educating the young children, should be pursued in earnest, and until these questions are resolved, it is felt that caution in its use should be the watchword.

2. Teachers' voices should be heard more in regard to computer use in education, as they are very knowledgeable about how children learn. It is felt that it would be in the best interests of children if parents and big businesses (those concerned with computer hardware and software) would avail themselves of teachers' valuable knowledge about children.

3. People concerned with the mental and physical health of little children should be heard as well.

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4. The uniqueness of a child should be the chief determinant as programs are written, adapted or rejected for him/her.

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